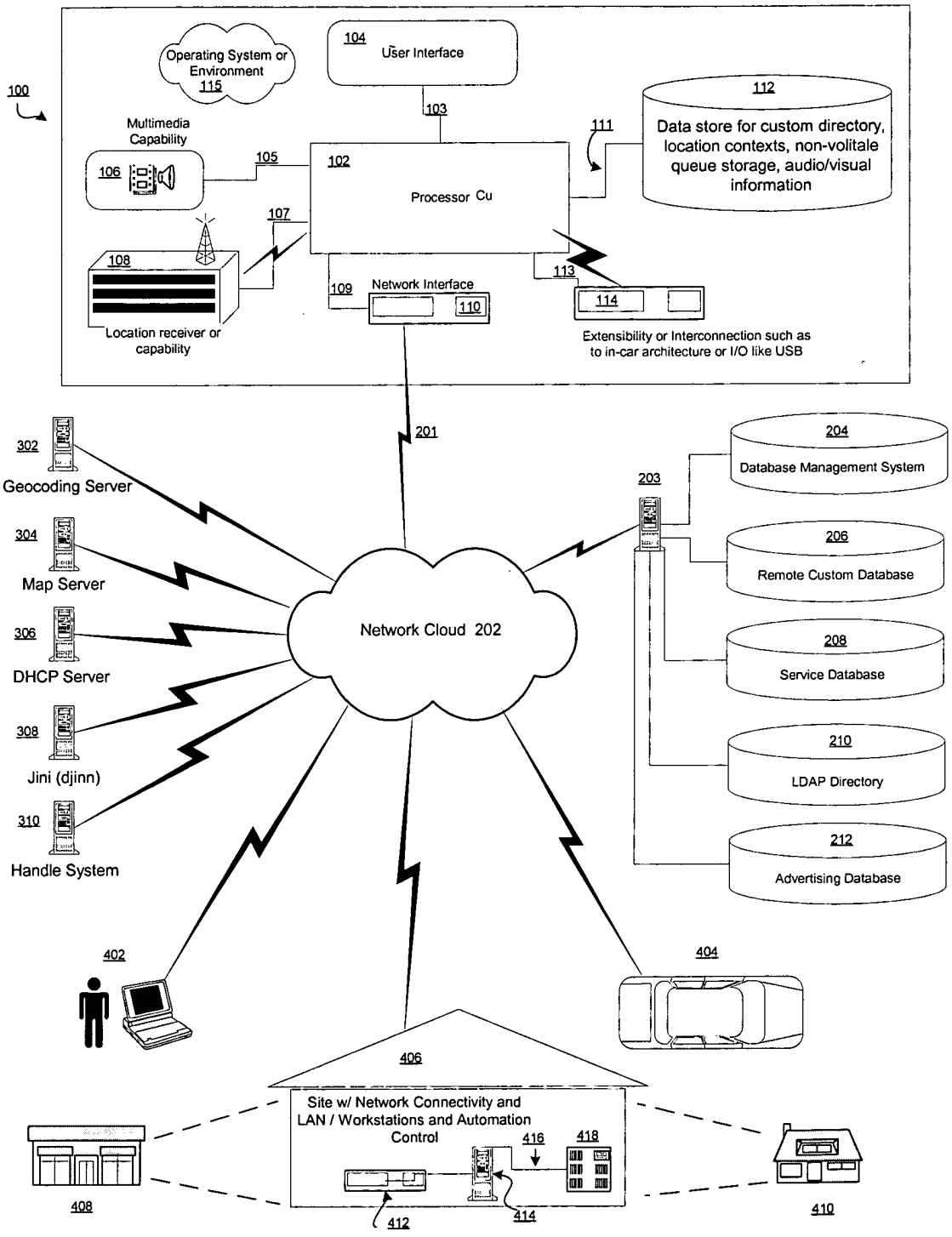

100
Operating System or Environment 115
104
User Interface
103
112
Data store for custom directory, location contexts, non-volitale queue storage, audio/visual information
111
Multimedia Capability
106
105
102
Processor Cu
107
108
Location receiver or capability
109
Network Interface
110
113
114
Extensibility or Interconnection such as to in-car architecture or I/O like USB
201
302
Geocoding Server
304
Map Server
306
DHCP Server
308
Jini (djinn)
310
Handle System
Network Cloud 202
203
204
Database Management System
206
Remote Custom Database
208
Service Database
210
LDAP Directory
212
Advertising Database
402
404
406
Site w/ Network Connectivity and LAN / Workstations and Automation Control
416
418
408
412
414
410

Figure 1

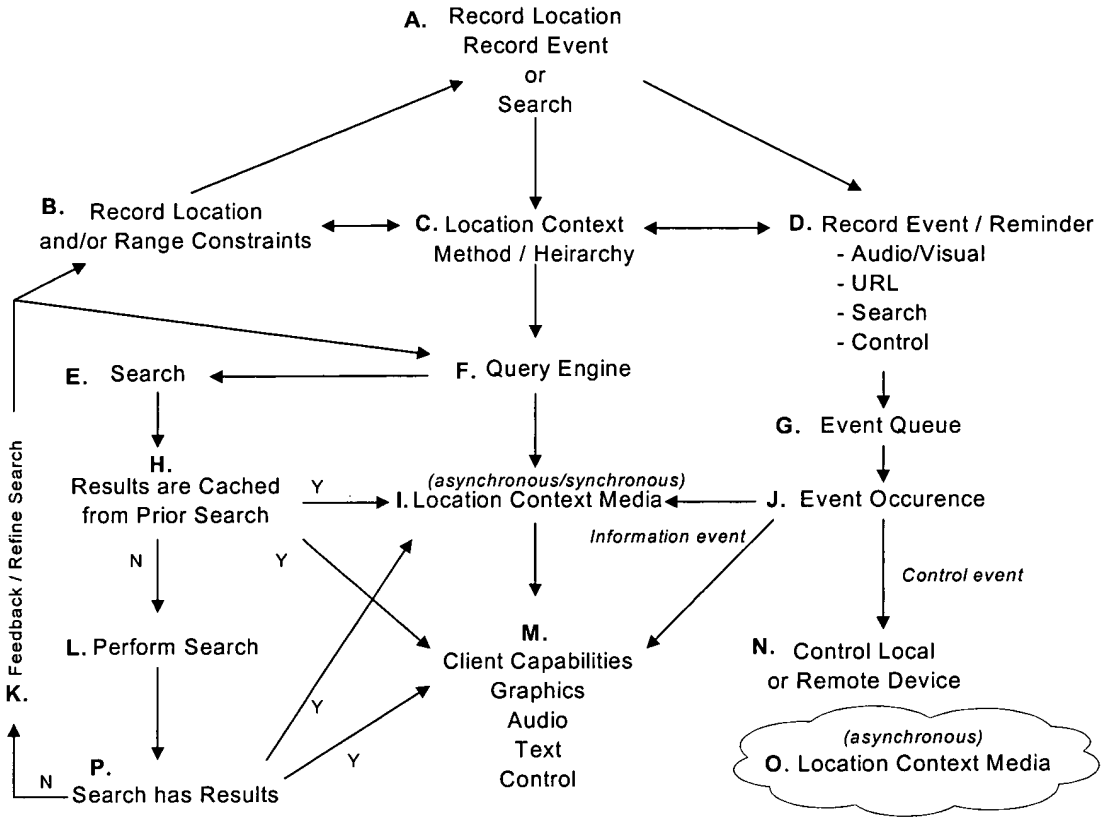

A. Record Location
Record Event
or
Search
B. Record Location
and/or Range Constraints
C. Location Context
Method / Heirarchy
D. Record Event / Reminder
- Audio/Visual
- URL
- Search
- Control
E. Search
F. Query Engine
G. Event Queue
H.
Results are Cached
from Prior Search
Y
(asynchronous/synchronous)
I. Location Context Media
J. Event Occurence
Information event
Control event
N
Y
L. Perform Search
M.
Client Capabilities
Graphics
Audio
Text
Control
N. Control Local
or Remote Device
K. Feedback / Refine Search
Y
Y
N
P.
Search has Results
(asynchronous)
O. Location Context Media

Figure 2

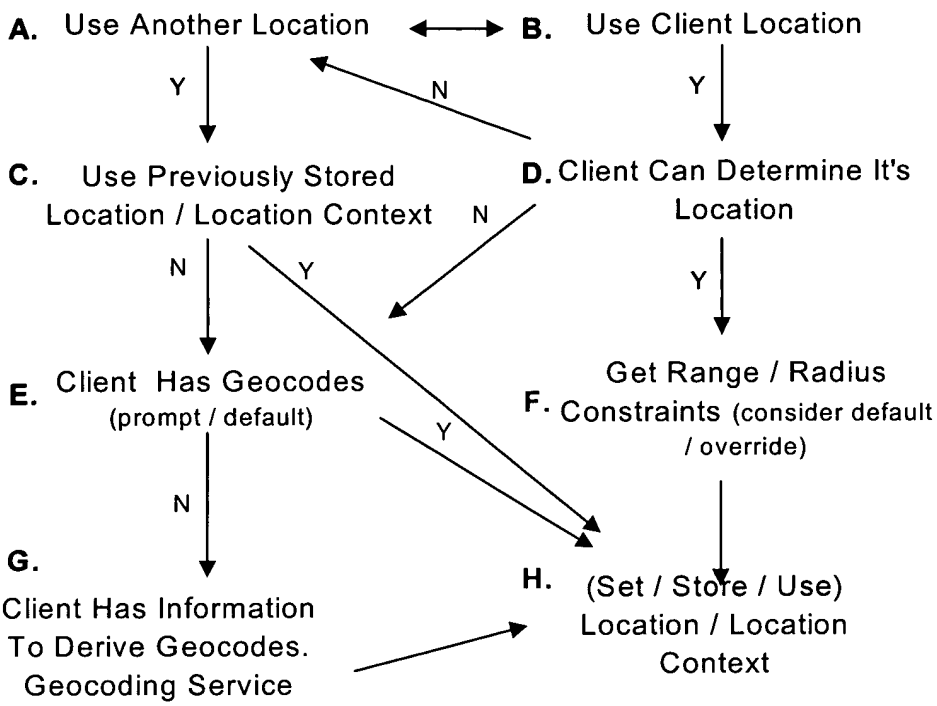


Figure 3

Page 5 of 30

ID	Latitude	Longitude	Name	Description	Range	Street Address ID
2345	32.77754	-77.12421	Home Alexandria VA		2	34
2346	38.622203	-76.516577	Breezy Point Marina		10	243
2347	39.02831	-77.448777	Work Loudon Site		5	4
2348	41.872833	-87.624357	Chicago Riverside Hotel		12	127

Figure 4

Client's Docket No. 37622.0[redacted]00

IP_Address	Latitude	Longitude	Created
63.20.247.227	38.4986	77.0876	Feb 6 2000 5:50PM
63.20.247.227	38.4986	77.0874	Feb 6 2000 5:52PM
63.21.58.221	38.4986	77.0873	Feb 6 2000 11:30PM
63.13.89.185	38.4984	77.0877	Feb 11 2000 10:50AM
63.15.231.53	38.4987	77.0885	Feb 11 2000 4:02PM
151.200.100.4	38.4985	77.0874	Feb 11 2000 9:11PM
151.200.100.4	38.4982	77.0877	Feb 12 2000 2:22AM
151.200.100.4	38.4983	77.0875	Feb 12 2000 3:14AM

Figure 5

Page 10 of 50 pages

ID	Service Context	Service ProviderID	Local or Remote	MIME type	Dimensions	Lat1	Lon1	Lat2	Lon2	Location
00400	4321	1000	R	audio/mpe	1 min	38.91	-77.2	39.01	-77.3	https://adserv.acmebank.com/ads.cgi?id=30
00401	2234	1001	L	image/png	200x300	39.91	-77.3	39.99	-77.4	/ad/local/images/403A69.png
00402	101	1000	.	.	.	.	.	.	.	

Figure 6

FEDEX 6179 6179 269

Lat1	Lat2	Lon1	Lon2	Type	TimeContext	ItemID	DeviceID or Location
32.77754	33.12455	-77.1242	-77.2275	Audio		/q/audioq/A5F339	151.22.122.40:7900
32.12421	33.14241	-77.1242	-77.2275	Control	1600-0500,M-F	q/cntrlq/87ACEF	06:43:53:09:04

Figure 7

Feb 12 05 04:36p

SERVICEID	LATITUDE	LONGITUDE	CLASS	SUBCLASS	TIMECONSTRAINT	SERVICEPROVIDERID
123456789	38.92319	-77.222517	1.3.4.5.7	5.7	0 11 4 * mon-wed	1000
123456790	38.91606	-77.237926	1.3.4.5.100	8.4	10 6 * * *	1000
123456791	38.90663	-77.229219	1000	45	0 */2 * * *	1.3.100.2
123456792	38.85912	-77.224644	2000	55	0 23-7/2,8 * * *	1.3.100.3

Figure 8

Express Mail Label No. EV 339 764 618

ClassID	Description	SIC	NAICS
1.5.3.7.6	Agencies, real estate	6531	53121
1.5.3.7.6.1	Commercial real estate	6531	531210
1.5.3.7.5.4	Office of Notaries	Null	54112
1.5.3.7.11	Attorneys' offices	8111	541110
1.5.3.7.12	Patent attorneys' offices	8111	541110
1.5.3.7.42	Architectural Services	8712	54131
1.5.3.7.42.7	Landscape Architectural Serv	781	54132
1.5.3.7.25	Music Publishing	Null	51223

Figure 9

FOR THE DISTRICT OF

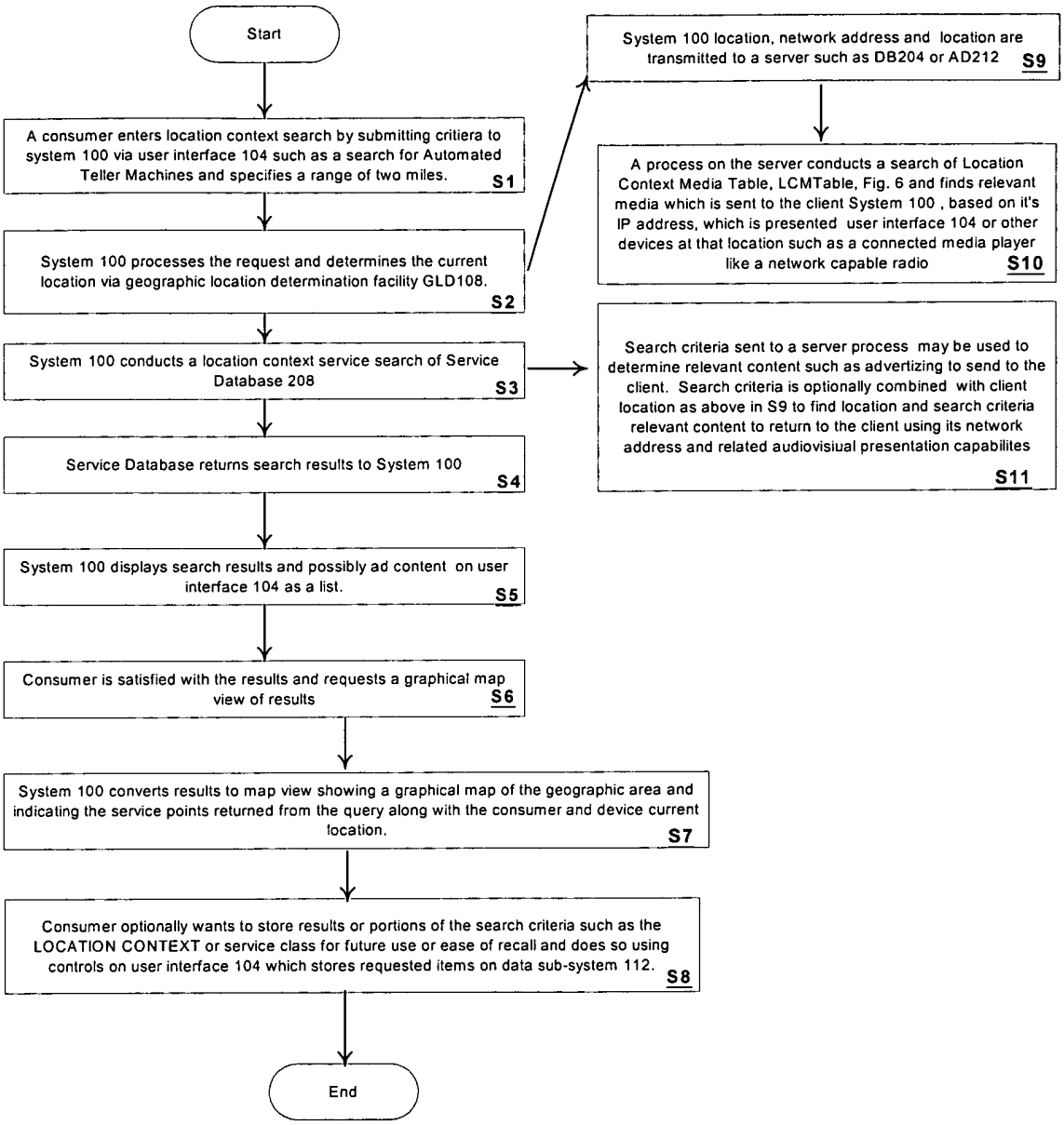

Start
A consumer enters location context search by submitting critiera to system 100 via user interface 104 such as a search for Automated Teller Machines and specifies a range of two miles. S1
System 100 processes the request and determines the current location via geographic location determination facility GLD108. S2
System 100 conducts a location context service search of Service Database 208 S3
Service Database returns search results to System 100 S4
System 100 displays search results and possibly ad content on user interface 104 as a list. S5
Consumer is satisfied with the results and requests a graphical map view of results S6
System 100 converts results to map view showing a graphical map of the geographic area and indicating the service points returned from the query along with the consumer and device current location. S7
Consumer optionally wants to store results or portions of the search criteria such as the LOCATION CONTEXT or service class for future use or ease of recall and does so using controls on user interface 104 which stores requested items on data sub-system 112. S8
End
System 100 location, network address and location are transmitted to a server such as DB204 or AD212 S9
A process on the server conducts a search of Location Context Media Table, LCMTable, Fig. 6 and finds relevant media which is sent to the client System 100 , based on it's IP address, which is presented user interface 104 or other devices at that location such as a connected media player like a network capable radio S10
Search criteria sent to a server process may be used to determine relevant content such as advertizing to send to the client. Search criteria is optionally combined with client location as above in S9 to find location and search criteria relevant content to return to the client using its network address and related audiovisiual presentation capabilites S11

Figure 10

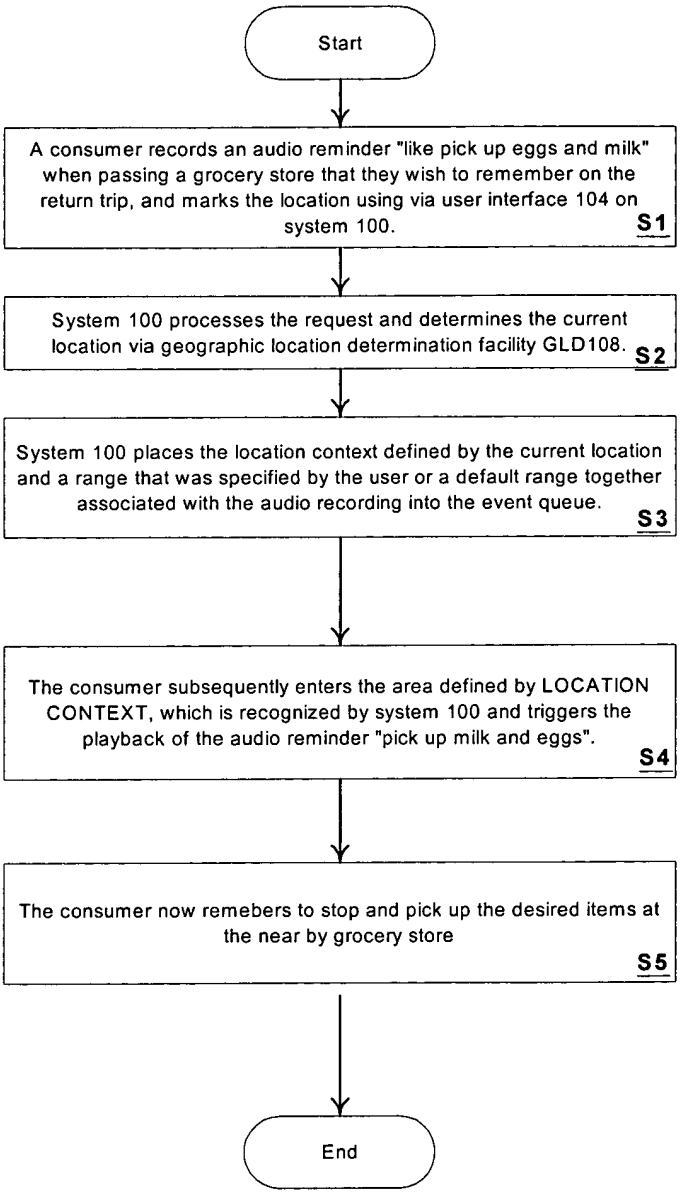


Figure 11

Added by the Examiner

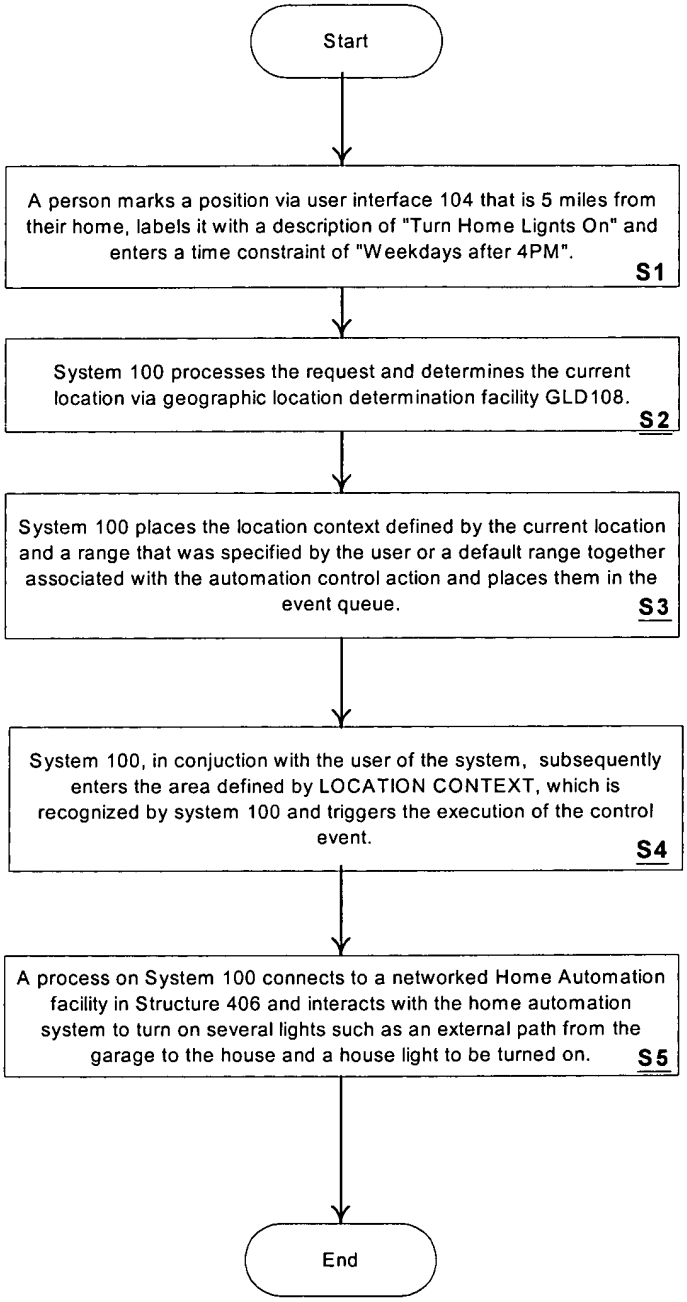

Start
A person marks a position via user interface 104 that is 5 miles from their home, labels it with a description of "Turn Home Lignts On" and enters a time constraint of "Weekdays after 4PM".
S1
System 100 processes the request and determines the current location via geographic location determination facility GLD108.
S2
System 100 places the location context defined by the current location and a range that was specified by the user or a default range together associated with the automation control action and places them in the event queue.
S3
System 100, in conjuction with the user of the system, subsequently enters the area defined by LOCATION CONTEXT, which is recognized by system 100 and triggers the execution of the control event.
S4
A process on System 100 connects to a networked Home Automation facility in Structure 406 and interacts with the home automation system to turn on several lights such as an external path from the garage to the house and a house light to be turned on.
S5
End

Figure 12

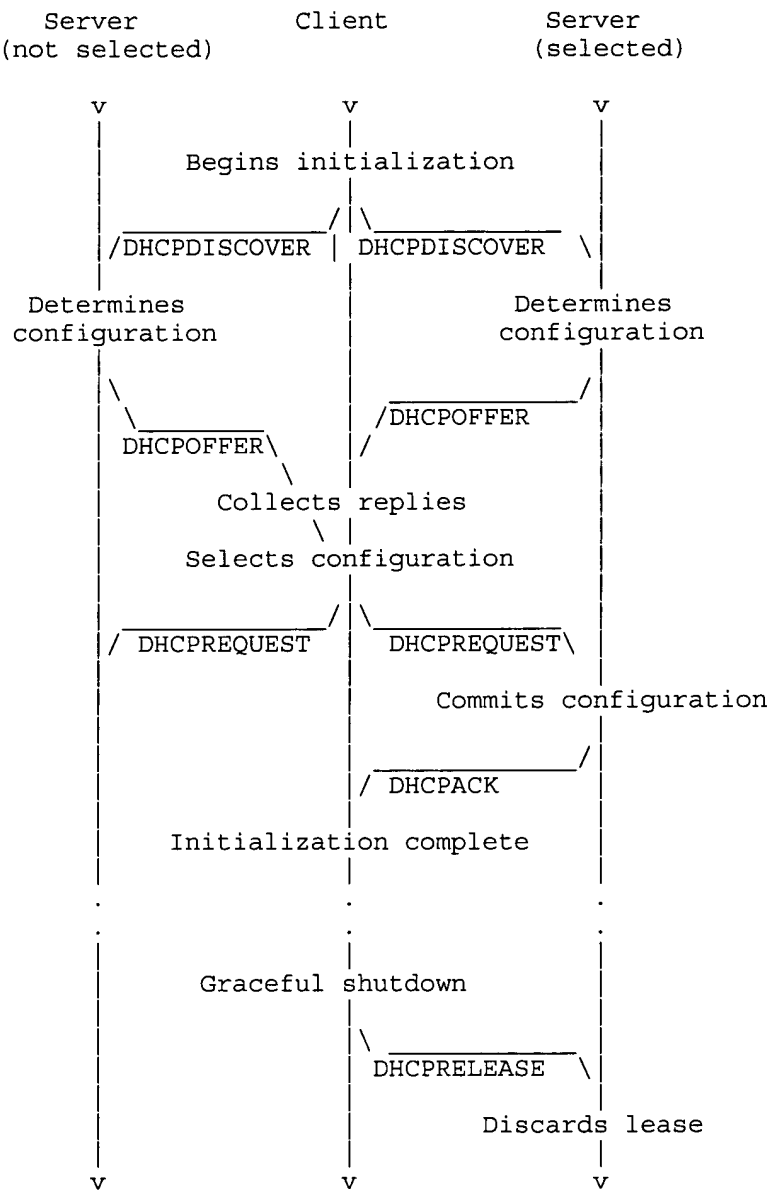
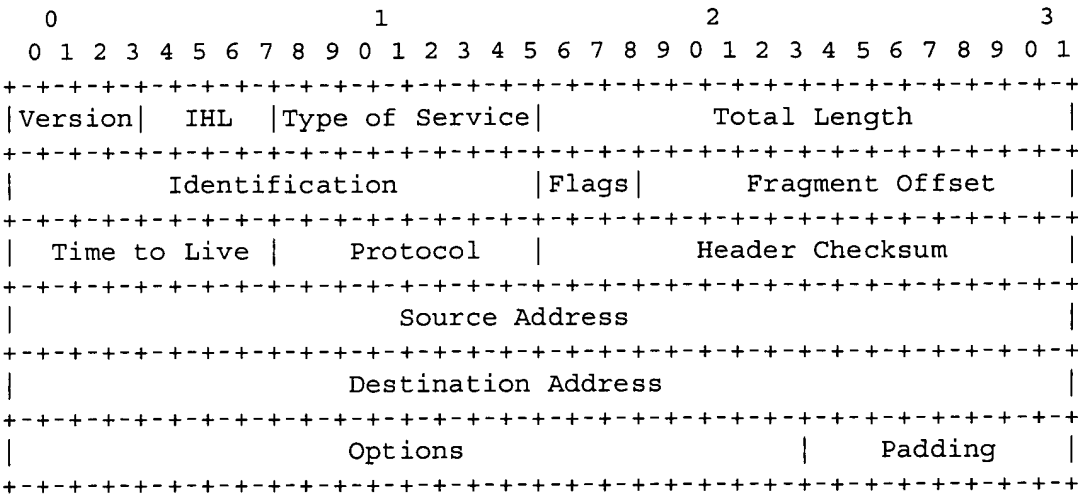

Server
(not selected)
Client
Server
(selected)
Begins initialization
/DHCPDISCOVER
DHCPDISCOVER
Determines
configuration
Determines
configuration
DHCPOFFER
/DHCPOFFER
Collects replies
Selects configuration
/ DHCPREQUEST
DHCPREQUEST
Commits configuration
/ DHCPACK
Initialization complete
Graceful shutdown
DHCPRELEASE
Discards lease

Figure 13



Example Internet Datagram Header

Each tick mark represents one bit position.

Figure 14

FOSTER-00676259

Sample client send transmission method with custom protocol.

An example client server interaction may look as follows where S is the Server and C is the Client

```
C: GEOS Hello apollo.no.net
S: 220 geoserver.geo.net HELLO user@no.net [123.100.200.5] Pleased to meet you

C: GEO:NMEA0183:$GPGGA,222949,3849.853,N,07708.757,W,1,03,5.1,84.1,M,034.0,M,*43
S: 200 OK
```

Below is a transcript of a functioning GeoServer/Client communication. The transcript is not meant to limit the present invention, but to illustrate a method for client server exchange of IP address and spatial information.

```
7479: Near2 GeoServer server started
 -- listening on TCP port 2345 at : Sun May 7 18:29:32 2000
7479: Connect mg-20425422-153.ricochet.net
 -- from 204.254.22.153 on port 1036 at : Sun May 7 18:29:32 2000

Client says: NGPS Hello (NMEA0183/GGA):3849.853,N,007708.757,W

**NGPS protocol Hello from 204.254.22.153
 -- got - 3849.853 N, 07708.757 W
 -- now - lat 38.83, lon -077.15
**Recording client location:
 -- 204.254.22.153
 -- 38.83 -077.15
 -- 05/07/2000 22:29:44 GMT
```

Figure 15

EXPRESS MAIL NO. EL 640 744 265 US